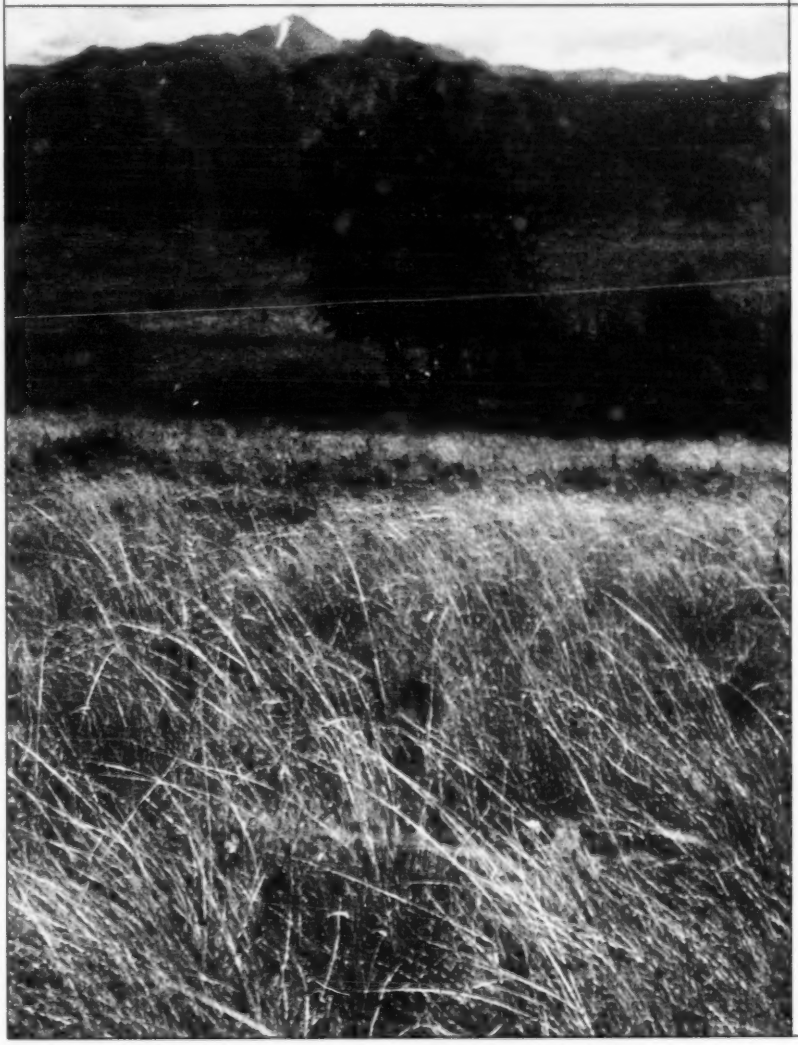
Determining available forage



RANGELAND HEALTH BROCHURE 7

BRITISH COLUMBIA

Contents

Determining Available Forage 1
Equipment 1
Procedures 1
Conversion tables 3
Field Data Forms 4

Citation:
Fraser, D. A. 2004. Determining available forage. Forest Practices Branch, British Columbia Ministry of Forests, Victoria, B.C. Rangeland Health Brochure 7.

URL: http://www.for.gov.bc.ca/hfp/range/range.htm

For more information on this subject, please contact:
Doug Fraser
Sr. Range Practices Agrologist
B.C. Ministry of Forests
Forest Practices Branch, Range Section
(250) 743-8933 local 225

For copies of this and other Range Section materials, please contact:
B.C. Ministry of Forests, Range Section (250) 387-6653

© 2004 Province of British Columbia

Contents

Determining Available Forage 1
Equipment 1
Procedures 1
Conversion tables 3
Field Data Forms 4

Citation:

Fraser, D. A. 2004. Determining available forage. Forest Practices Branch, British Columbia Ministry of Forests, Victoria, B.C. Rangeland Health Brochure 7.

URL: http://www.for.gov.bc.ca/hfp/range/range.htm

For more information on this subject, please contact:

Doug Fraser
Sr. Range Practices Agrologist
B.C. Ministry of Forests
Forest Practices Branch, Range Section
(250) 743-8933 local 225

For copies of this and other Range Section materials, please contact:

B.C. Ministry of Forests, Range Section (250) 387-6653

© 2004 Province of British Columbia

104-07293/

Determining Available Forage

The following is a simple procedure to determine available forage without the need to oven-dry forage samples.

Equipment

- A circular hoop of either 0.25 m^2 or 0.5 m^2 area. You can make a hoop by joining a cable of either 1.77 m or 2.51 m length, respectively
- Clippers
- A hand-held spring scale that weighs in grams
- Paper bags

Procedure

1. Select a transect line to be representative of the pasture and plant community.
2. Place the hoop at the start of the transect and clip all plant material within the hoop to ground level. For the purpose of determining forage for cattle, do not clip shrubs or trees. If you are doing a determination for wildlife include the current year's growth of shrubs/trees.
3. Discard unpalatable plants and old litter. Weigh the empty paper bag, then weight the bag with the forage sample, and deduct the difference.

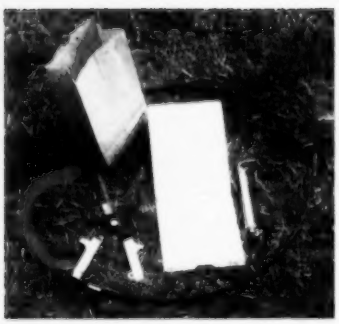


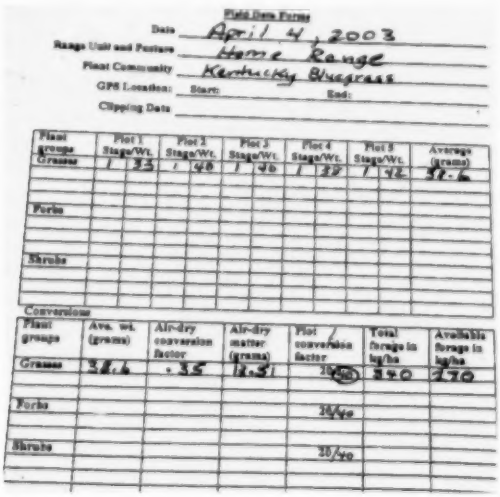
Figure 1 Required equipment.

Figure 2 Clipping a plot.

Figure 3 The bagged sample.

4. Take several samples at pre-determined distances (e.g., every 100 paces) along the transect. If there are different plant community types, keep the samples separate, as they will have different production levels and carrying capacities.
5. To determine the amount of usable dry matter, use the conversion tables provided.
6. To determine the dry weight in kg/ha, if you are using the **0.25 m²** hoop, multiply the weight in grams by **40** to get kg/ha. If you are using the **0.5 m²** hoop, multiply the weight in grams by **20** to get kg/ha.
7. Multiply the kg/ha by a utilization factor (usually 50%) to determine the amount of forage/ha that can be safely consumed from each plant community type.
8. Multiply the total ha by the amount of available forage for each type.
9. Since each cow-calf unit will consume about 400 kg/month of dry matter, divide the total available forage by 400 kg to determine the number of animal unit months (AUMs) the area can support.

Figure 4 Weighing the sample.



Field Data Forms

Date: April 4, 2003

Range Unit and Pasture: Home Range

Plant Community: Kentucky Bluegrass

GPS Location: Start: End:

Clipping Date:

Plant groups	Plot 1 Stage/Wt.	Plot 2 Stage/Wt.	Plot 3 Stage/Wt.	Plot 4 Stage/Wt.	Plot 5 Stage/Wt.	Average (grams)
Grasses	1 35	1 40	1 46	1 37	1 42	38.6
Forbs						
Shrubs						

Conversions

Plant groups	Ave. wt. (grams)	Air-dry conversion factor	Air-dry matter (grams)	Plot conversion factor	Total forage in kg/ha	Available forage in kg/ha
Grasses	38.6	.35	12.51	20/40	340	170
Forbs				20/40		
Shrubs				20/40		

Figure 5 The completed field data forms.

Conversion tables

Table 1 Percentage of dry matter in grasses clipped at different growth stages*

Graminoids	Prior to boot stage (%)	Boot stage to flowering (%)	Seed ripe (dry tips) (%)	Dry leaves and part stems (%)	Dormant (%)
Grasses and sedges	35	45	60	85	95

Table 2 Percentage of dry matter in forbs clipped at various growth stages*

Forbs	Initial growth (%)	Flowering (%)	Seed ripe; leaf tips dry (%)	Leaves dry; stems dry (%)	Dry (%)
Succulents (buttercups, violets, lilies)	15	35	60	90	100
Leafy (balsamroot, clovers, geranium, lupines)	20	40	60	90	100
Fibrous leaves (Eriogonum, Erigeron)	30	50	75	90	100

Table 3 Percentage of dry matter in shrubs and trees clipped at various growth stages*

Type	New leaf and twig growth (%)	Full-size green and older leaves (%)	Green fruit (%)	Dry fruit (%)
Evergreen shrubs (bigsage, ceanothus)	55	65	35	85
Deciduous shrubs (snowberry, willows)	35	50	30	85
Deciduous trees (aspen, maples, alders)	40	55	35	85

* Source: USDA NRCS National Range Handbook

Field Data Forms

Date _____

Range Unit and Pasture _____

Plant Community _____

GPS Locations: Start _____ End _____

Clipping Data

Plant groups	Plot 1 Stage/Wt.		Plot 2 Stage/Wt.		Plot 3 Stage/Wt.		Plot 4 Stage/Wt.		Plot 5 Stage/Wt.		Average (grams)
Grasses											
Forbs											
Shrubs											

Conversions

Plant groups	Average weight (grams)	Air-dry conversion factor	Air-dry matter (grams)	Plot conversion factor (circle)	Total forage in kg/ha	Available forage in kg/ha
Grasses				20/40		
Forbs				20/40		
Shrubs				20/40		

CP4500100758